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Estimated completion times:

- i) Reading the Patent Ready® textbook: about 12 hours, if you find drawings helpful.
- ii) Reviewing the sample documents, doing the exercises and the homework assignments in this Study Guide: about a total of 4 hours. (It will go faster if you do not do the exercises and simply look up the solutions.)

Your Resume, also known as “bio” and “vitae”: After you complete all of the above, see the end of this document for words you can add to your resume.

If self-studying, a great time for you to cover these materials is during a break from school time, such as a summer break, winter break, etc.

If studying for a course in a University or College, your professor’s syllabus may point you to portions of this Study Guide.

If preparing to start a company, consider obtaining also: Patent Ready® Engineering Notebook: With Patent Analysis Forms, by Patent Introductions, Inc. ISBN-13: 978-1519218926 (Amazon.com). Two exercises (E9.1 & E10.5) require you to use it. After you complete studying from the Patent Ready textbook and this Study Guide, you may want to consider making this Engineering Notebook required for the engineers in your company.

If you are an independent inventor, consider obtaining also: Patent Ready® Inventor's Journal: With Patent Analysis Forms, by Patent Introductions, Inc. ISBN-13: 978-1515308690 (Amazon.com). Two exercises (E9.1 & E10.5) require you to use it. After you complete studying from the Patent Ready textbook and this Study Guide, you will know how you can continue to use this Inventor's Journal for capturing your ideas and deciding whether or not you can patent them.

FOR LEARNING FROM CHAPTER 1
OF THE [PATENT READY® BOOK](#)

QUESTIONS TO PONDER:

QTP.1.1) In your entire interaction with the patent system, you may be tempted to not tell the truth at some point. Do you think this will benefit you in the grand scheme of things?

QTP.1.2) As you read about the Patent System, do you think you might participate? If so, how? Can you find yourself in FIG. 1A or FIG. 1B?

MORE INFORMATION:

With FIG. 1A, WITHOUT READING FULLY! – flip through the pages of:

- a sample U.S. patent: [US 5,796,479 \(Optics\)](#)
- a sample published U.S. patent application: [US 2005 0240370 A1 \(RFID\)](#)

With FIG. 1B, flip through the pages of:

- a sample patent from India: [IN193618 \(Volumetric weigher for packing packaging machine\)](#)
- a sample patent from China: [CN 85108757 \(Control Valve - Hydraulic Brake System - motor vehicles\)](#)

The above documents are unrelated to each other.

Open at the same time both of these documents, and flip through their pages:

- this sample published U.S. patent application: [US 2012 0075376 A1 \(Printer\)](#)
- and this sample issued U.S. patent: [US 8,382,229 B2 \(Printer\)](#)

From their similarities, you will recognize that both of these documents were generated by the U.S. Patent Office due to a single patent application filed by the applicant:

- a) the first patent document is the patent application as published while pending, and
- b) the second patent document is the patent as it issued (in this case, it did issue).

Now flip through the pages of: [US 6,398,010 B1 \(deposit objects\)](#).

Also, read the title and the abstract on the cover page. Do not be misled by the term “shingle formation”; you can tell that this invention is not for depositing shingles on a rooftop, because these objects are deposited on a conveyor that moves. Rather, recognize that some technological fields develop their own special terms. These special terms are also known as terminology, jargon and “term in the art”.

Now, open at the same time both of these documents:

- a sample published British patent application: [GB 2 342 345 A \(Published Application\)](#)

- a sample issued British patent: [GB 2 342 345 B \(Issued Patent\)](#)

Flip through their pages, and look at their title. Again, they are related to each other as a patent application published while pending, and the eventually issued patent. Does their content remind you of any patents you have seen recently?

With FIG. 1C, flip through the pages of:

- a sample published French patent application [FR2784085\(A1\)](#)
- a sample published German application [DE19846032\(A1\)](#)

Even if you do not speak the language, at least you should be able to follow with the drawings. These two are examples of the same patent family as the British documents above, and the last U.S. patent above. Their texts are translated from a single original.

BIG LESSON HERE: Sometimes you will be asked to look at a patent document, to see if you have a general impression of it. *Even if that document is in a language you do not speak, do not turn away*; rather, flip through its pages, look for its drawings; look for numbers and dates that may be familiar in view of other documents. Of course, keep the perspective that your general impression is not made with certainty every time, etc.

For Sections 1.7-1.9, cautions

- i) Those who pose these types of questions often choose questions whose answers suggest that the balance that the laws reach is unfair, and therefore the laws should be changed. Before deciding what *you* think is fair, insist upon listening to enough arguments from other sides, and thinking through them critically.
- ii) When laws are discussed in class, professors like to ask what you think of various laws. You may form an idea that you like some laws better than others. At the end of the class, however, remember that all laws still apply.

EXERCISES

Try solving these exercises on a separate document, after reading this chapter of the Patent Ready textbook. Afterward, you can check your solutions (see link at the end of this section).

Exercise E1.1:

Determine whether you have heard of the inventor of the following: [US 0,174,465 \(Telegraphy\)](#)

Exercise E1.2:

Determine whether a law was named after the inventor listed on the following: [US 03,212,162 \(Semiconductor Fabrication\)](#)

Exercise E1.3:

Look at this issued patent [4871439B2](#) ... does it seem familiar?

Exercise E1.4:

Flip through the pages of: [US 06,678,681 \(Database query\)](#); in this one, does the inventor's name seem familiar? Does his employer seem familiar?

Exercise E1.5:

Flip through the pages of: [US 08,754,058 \(Gene Inhibitors\)](#); where do the inventors of this U.S. patent live?

Exercise E1.6:

Flip through the pages of: [WO 2000 016911 A1 \(Preparation of thermoset articles\)](#); in this one, other than a table of values for 10 examples, can you find any diagrams?

Exercise E1.7:

Flip through the pages of: [US 09,275,759 \(Nuclear reactor\)](#); had you known that there were patents in this field?

Exercise E1.8: Wholly unfamiliar patent document in an unfamiliar language.

Flip through the pages of this: [patent document](#) (this exercise assumes that you are unfamiliar with the language of this document).

- a) Which country is it likely from? (hint: look at the top centered line for two English characters in parentheses)
- b) Which year was this document likely created?
- c) Does this patent seem to be for a type of computer database query?
- d) How many drawings does this patent document have? (this is a trick question)

Exercise E1.9: Identifying patent document types, and the process that generated them

Start a new document; copy in it the table below. Then provide answers where there are question marks.

Patent Document Number (all of them were mentioned above)	Document type	FIG. # in Patent Ready textbook showing process that generated this patent document
US 2005 0240370 A1 (RFID)	Published patent application	FIG. 1A (from above)
US 8,382,229 B2 (Printer)	Issued patent	FIG. 1A (from above)
GB 2 342 345 A	Published patent application	FIG. 1B (from above)
GB 2 342 345 B	Issued patent	FIG. 1B (from above)
US 0,174,465	?	FIG. ?
US 03,212,162	?	FIG. ?
WO 2000 016911 A1	?	FIG. ?
US 09,275,759	?	FIG. ?

You can check your work by [accessing solutions for the exercises of this Chapter.](#)

FOR LEARNING FROM CHAPTER 2
OF THE [PATENT READY® BOOK](#)

QUESTIONS TO PONDER:

QTP.2.1) Would a company ever start paying a salary to someone who would not somehow contribute to its continuing operations, revenues or profits?

QTP.2.2) How does an engineer's job help the company's revenues and profits to continue? Does the output of an engineer's job affect the company's quarterly revenues and profits as quickly as the output of a salesperson's?

QTP.2.3) If a company's newly introduced brand new product becomes successful, and it is later copied by rivals, should the copying be a surprise to the company? Could this copying be shrugged off as the type of event that the company could do nothing about?

QTP.2.4) A university may conduct research, and publish some of its findings in research journals. A for-profit company may have a Research and Development ("R&D") Department whose people conduct research, but does that company benefit if the findings of its R&D Department are free to its competitors to use?

MORE INFORMATION:

Products are often compared on the basis of *which features they include*. This comparison typically happens by using a table called a product comparison chart. Below is a very simple example:

TABLE T2.1 – SAMPLE PRODUCT COMPARISON CHART

Company	Product	Feature F1	Feature F2	Price/Market share
Comp_A	Prod_A	v	v	\$\$\$\$
Comp_B	Prod_B	v	x	\$\$

In the simple example of Table T2.1, only two products are listed, with only two features. (The last column is often not provided openly.)

In Table T2.1, product Prod_A has a feature F2 that product Prod_B does not have. This provides a **differentiation** in customer benefits. Accordingly, Comp_A can maintain a higher price for its product Prod_A, than the price that Comp_B can maintain for its product Prod_B. Alternately, thanks to this differentiation, product Prod_A has a higher market share than product Prod_B. Therefore, thanks to this differentiation, company Comp_A is generally receiving more revenue than company Comp_B.

This example is of course simplified. In tables such as Table T2.1 there are often more than two companies, and more than two features. For established products, there can be multiple columns of features and numerous rows.

Such tables are developed by companies as sales materials, to demonstrate various buying options to their customers. Moreover, such tables are also developed by third parties, which are neutral as to products and sell advertisements, and so on.

Importantly, such tables are also developed internally by companies that want to map strategically the choices of their customers. Companies often view such tables as dynamic, i.e. changeable in subsequent years, and plan their product strategy according to how they can affect such tables, so as to steer more revenue to themselves. Their strategy is as to:

- a) what new products to offer, which would add rows to the table, and/or
- b) how to improve their present products, so they have more customer features.

When it comes to executing the product strategy, engineers become important.

In Table T2.1 the difference is in features that make a difference to the customer. These features can be technical, or level of service provided to customer, etc. Alternately, the differentiation could instead be in other aspects, such as cost structure, in how Prod_A & Prod_B are made, etc.

EXERCISES

Try solving these exercises on a separate document, after reading this chapter of the Patent Ready textbook. Afterward, you can check your solutions (see link at the end of this section).

Exercise E2.1: Viewing Product Comparison Charts

Go on the internet, and use your favorite search engine to search the phrase: “product comparison chart”. See if you can get images. Do you see rows for products, and columns for features?

Exercise E2.2: Lack of Differentiation

- a) What is the name for the situation where products become virtually indistinguishable from each other, and therefore compete on the basis of price?
- b) What would the columns be like, for such products?

Exercise E2.3.0: Scenario of Dynamic Competition

Assume there is a market where there are only two players, companies CA and CB. At year Y0, the product comparison chart looks like Table T2.2:

TABLE T2.2 – Product Comparison Chart in Year Y0

Company	Product	Feature F1		Price/Market share
---------	---------	------------	--	--------------------

CA	PA	v		\$\$\$
CB	PB	v		\$\$\$

From Table T2.2, during Y0 both products PA, PB have a feature F1. In other words, they are not differentiated. They are similarly priced, and they command about equal market share.

During Y0, CB does not risk investing in R&D. Rather, CB takes their excess profits and distributes them to shareholders.

During Y0, however, CA invests in R&D to invent and develop a feature F2. CA further upgrades its offering, from its previous product PA to a new version product PA+ that includes the new feature F2.

(CA, of course, took a risk in doing so; indeed, it spent money on the new feature F2 without knowing with certainty whether there would be a return. If customers do not like the new feature, this money would have been wasted, and Table T2.2 would remain.)

As it happens, thanks to its new feature F2, this new PA+ does very well in the market during next year Y1: it grabs more market share, even as its price is increased! To hold on to diminished market share, CB lowers the price of product PB. The product comparison chart looks like Table T2.3:

TABLE T2.3 – Product Comparison Chart in Year Y1

Company	Product	Feature F1	Feature F2	Price/Market share
CA	PA+	v	v	\$\$\$\$
CB	PB	v	x	\$\$

In this scenario, as to Feature F2, CA can be called the leading company, and CB can be called the lagging company.

Table T2.3 is the scenario of Table T2.1, except now you should understand that this table moves dynamically with time. As CA changes things, it should reasonably anticipate that CB will also try to change things. So, for the future, both leading CA and lagging CB contemplate that the following could become possible, shown in Table T2.4:

TABLE T2.4 – Possible Future Product Comparison Chart

Company	Product	Feature F1	Feature F2	Price/Market share
CA	PA+	v	v	\$\$\$
CB	PB+	v	v	\$\$\$

This possible future of Table T2.4 could happen if CB then invests in R&D towards developing and Feature F2 for its updated product PB+. If this happens, both products PA+, PB+ will then

become undifferentiated again, as they were in year Y0. Their prices and market shares will also equalize.

Exercise E2.3.1: The Perspective of Lagging Company CB in Dynamic Competition

In the scenario of E2.3.0, where the possible future of Table T2.4 is being considered:

- a) Will CB want the possible future of Table T2.4 to materialize? If it tried to make it so, what would its strategy be called?
- b) In a world without patents, to add feature F2 to product BP, CB would risk R&D funds. Would *these funds by CB* be more or less than the funds CA spent to develop feature F2?
- c) In a world without patents, would it be easier for CB to justify spending the R&D funds to add feature F2, than it was for CA to justify spending those funds earlier?
- d) In a world with patents, to add feature F2 to product BP, does CB face an additional risk? What is that risk called?

Exercise E2.3.2: The Perspective of Leading Company CA in Dynamic Competition

In the scenario of E2.3.0, the possible future of Table T2.4 represents, for CA, the risk that its revenue will decrease.

- a) What is the name for this risk?
- b) Is this risk foreseeable to CA, while it is developing feature F2?
- c) How could CA mitigate this risk cost-effectively?

You can check your work by [accessing solutions for the exercises of this Chapter](#).

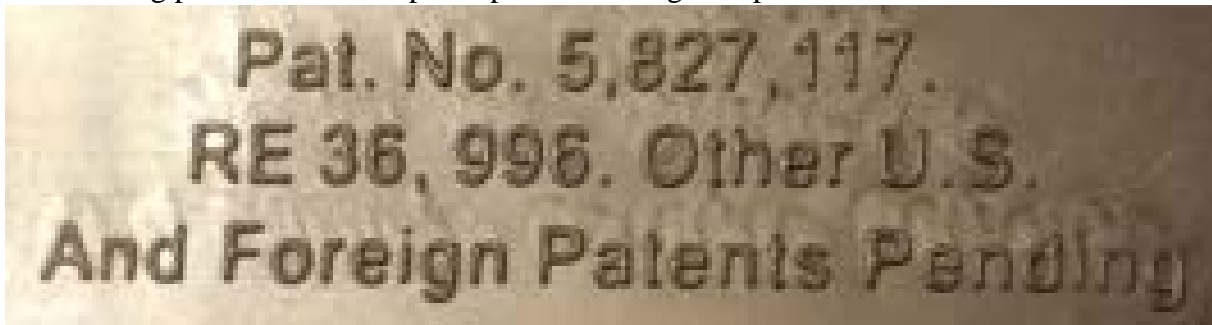
FOR LEARNING FROM CHAPTER 3
OF THE [PATENT READY® BOOK](#)

QUESTIONS TO PONDER:

N/A

MORE INFORMATION:

The following picture is an example of patent marking on a product:



EXERCISES

Try solving these exercises on a separate document, after reading this chapter of the Patent Ready textbook. Afterward, you can check your solutions (see link at the end of this section).

Exercise E3.1: Protecting the investment to develop a new product or feature

Look again at FIG. 3H. How do you minimize the quantity on the vertical axis?

Exercise E3.2: The extent to which the costs of New Product Development are burdened if one also patents

In some industries, developing a new product or feature often costs \$500,000 to \$5,000,000 and, including the extra feature is expected to bring extra revenue several times that. Do you think it is it worth to spend \$15,000 on a patent for the extra feature, to help protect this extra revenue from risk PBR-2 over the next two decades?

Exercise E3.3: The extent to which the time for New Product Development is delayed by also patenting

It often takes from a few months to a few years to develop a new product or feature. Reporting an invention for patenting often requires less than half a day. Proofreading a patent application

similarly takes less than half a day most of the time. Do you think it is justified to not take the time to report an invention for patenting so as to not delay product introduction?

Exercise E3.4: Dealing with the temptation of False Patent Marking

Suppose you started working in a company as a project manager, in developing a new product. Management has told you that there will be absolutely no patenting. The product has been designed and, in preparation for shipping, you are asked where the marking of “Patent Pending” should go. When you say, “we will not mark because we will not patent”, you are told that Management has requested the marking. What can you tell Management about:

- a) this type of conduct?
- b) the chances of this type of conduct being discovered by rivals?
- c) the chances of rivals retaliating upon discovering this type of conduct?

Exercise E3.5: Detecting & dealing with False Patent Marking by rivals

Find products by a competitor that have patent marking. (If not working in a company, find a product from your environment.) Identify a marked US Patent number. Go to the following: <http://patft.uspto.gov/netahtml/PTO/srchnum.htm>

Type that patent number in the Query box, and then click on the “Search” button:

- a) Could you have discovered an instance of false marking if:
 - i) the website says: ‘No patents have matched your query’?
 - ii) a patent is found by this search, whose invention looks like it has nothing to do with the object you identified?
- b) If you suspect False Patent Marking by a rival, what should you do?
- c) Even if you suspect False Patent Marking by a rival, what should you NOT do?

You can check your work by [accessing solutions for the exercises of this Chapter](#).

FOR LEARNING FROM CHAPTER 4
OF THE [PATENT READY® BOOK](#)

QUESTIONS TO PONDER:

QTP.4.1) When a company employs an employee, the employment is governed by laws. The company and the employee may even have an Employment Agreement in place, but that agreement may not contradict the laws. Do you like that these laws are in place?

MORE INFORMATION:

See [sample elements of an Employment Agreement](#). Note, this sample only has *elements* of such an agreement, not a full such agreement. Moreover, such an agreement may be accompanied with a letter of offer more customized to you. Such a letter of offer may specify your base salary, job title, and the department you are initially assigned to.

Find the Sample Personal Patent Organizer (PPO) in Appendix C of Patent Ready book, which is also downloadable from: <http://www.patent-ready.com/content-and-downloads.html> (link near the bottom of that webpage). Store your PPO in a place you can retrieve, because you will be asked to use it later.

Caution to students: Ownership of rights to your inventions.

Some schools require you to sign a promise that you will assign to them all ownership rights to inventions you made while doing your assigned work, projects, lab work and so on. If your school does that and you have a great idea for which you want to keep all the ownership rights, then *consider never reporting this idea to your school, never using the school's equipment to prototype it or test it and so on*. If, in a class for patent skills you are requested to submit an Invention Reporting Form, then consider reporting a different invention. (And do find your school's Technology Transfer Department and suggest to them that they will be missing out completely; but you are far more likely to want to develop the idea using their equipment and infrastructure if all they ask is a just a fraction of what you get from your idea.)

EXERCISES

Try solving these exercises on a separate document, after reading this chapter of the Patent Ready textbook. Afterward, you can check your solutions (see link at the end of this section).

Exercise E4.1: Start your Personal Patent Organizer (PPO)

Create your Personal Patent Organizer (Section 4.9). You can use your started sample. Customize it for you, and store it for your career, perhaps near your resume. Store it in a place you can retrieve, as later assignments may suggest ways to enrich it.

Exercise E4.2:

Read any three consecutive paragraphs of the [sample elements of the Employment Agreement](#). Does the writing seem to you ordinary? Is this the way you would ordinarily speak with your friends?

Exercise E4.3:

Read section 2.4 of the document of E4.2. What does it suggest about this company?

Exercise E4.4: Possibility of divulging your employer's False Patent Marking

Read section 1.3 of that document. It mentions Trade Secrets that may not be divulged. Among them are: “patent and intellectual property strategies, plans and approaches”. Could the Management’s False Patent Marking be one such patent and intellectual property strategy, plan or approach that you are obligated to keep as a trade secret?

Exercise E4.5:

Read the rest of the sample elements of the Employment Agreement, pretending they apply to you. Do these words promise you that:

- a) your employment will never be terminated?
- b) your salary will never be changed?
- c) the department you are in will never be changed, or that your work responsibilities will not change?

Exercise E4.6: Loyalty

Do you see any words in that document about a duty of loyalty? (feel free to word-search the entire document.)

Exercise E4.7: Ownership of inventions possibly outside the scope of the employer

Suppose you work as a chemist in the research department of a company that only makes and sells detergents. In the evenings you tinker with your child’s bicycle, and invent a new type of mechanical brake for the wheel of the bicycle. In so doing, you were careful to not use any equipment, supplies, facilities or trade secret information of your employer; in fact, you did not even use your employer’s work computer to research suppliers of parts needed for your new mechanical brake. You want to patent this type of brake, and of course to keep the patent for yourself. Does *this* agreement permit you to?

Exercise E4.8:

If the answer to Exercise E4.7 is yes, can you think of some good ways to go about it? (Answering will be easier for those who have worked in such companies.)

You can check your work by [accessing solutions for the exercises of this Chapter](#).

FOR LEARNING FROM CHAPTER 5
OF THE [PATENT READY® BOOK](#)

QUESTIONS TO PONDER:

QTP.5.1) If you have an industry in mind, start thinking of what kinds of problems it faces, is now solving, and how it is solving them. This may help you invent very usefully in the future.

QTP.5.2) You and your coworkers will have a number of ideas for new products or improved products for your employer. Will all of these ideas be patentable? Will all of these ideas be equally valuable?

MORE INFORMATION:

Download the Invention Reporting Form (IRF) from <http://www.patent-ready.com/content-and-downloads.html>

EXERCISES

Try solving these exercises on a separate document, after reading this chapter of the Patent Ready textbook. Afterward, you can check your solutions (see link at the end of this section).

Exercise E5.1: Updating your Personal Patent Organizer (PPO)

Read the questions of the IRF that you downloaded: decide which of the questions are specific to an invention you are writing (“substantive”), and which of the questions pertain to you personally (“administrative”).

Update your Personal Patent Organizer with the answers to the administrative questions, since they will be the same for each invention that you will report in the future. Then you can copy from it this information to every new IRF, so you can save time.

Exercise E5.2: Definition of an invention

- a) What are the two elements of an invention?
- b) Which one happens first in time?

Exercise E5.3:

The [sample elements of an Employment Agreement](#) that we saw in the exercises of the previous chapter contemplate that you might invent. Read section 6 of that document. Does it specify what exactly you are supposed to invent?



Exercise E5.4:

Look again at FIG. 5D of the textbook. Your company will decide whether to make this happen or not. How will they make that decision? (Manu factors could apply, write as many as you can think of.)

You can check your work by [accessing solutions for the exercises of this Chapter.](#)

FOR LEARNING FROM CHAPTER 6
 OF THE [PATENT READY® BOOK](#)

QUESTIONS TO PONDER:

QTP.6.1) Do you think that the patenting process works perfectly every time? (Hint: do you know many processes that work perfectly every time?)

MORE INFORMATION:

Patent races do happen. Table T6.1 is an example of a timeline, where time proceeds vertically downwards and two (earlier) applications A and B prevent later application C from issuing.

TABLE T6.1: Competitive patenting timeline

Date\Application	Timeline A: US Patent Application “A” Ser. No. 09/426,457	Timeline B: Patent Application “B” Ser. No. 10/112,578	Timeline C: Patent Application “C” Ser. No. 11/172,408
October 5, 1999	TA5 – filed		
	(No TA6: No publication per FIG. 6B, since filed before 2001)		
January 22, 2002	TA8 – issued as US 6,340,822 B1		
March 29, 2002		TB5 – filed	
November 28, 2002		TB6 – published as US 20020175408 A1	
April 19, 2005		TB8 – issued as US 6,882,051 B2	
June 30, 2005			TC5 – filed
August 10, 2006			TC6 – published as US 20060175601 A1
December 29, 2008			TC7 – Rejection mailed by the Patent Office, based on the prior art of A (issued 6,340,822) and B (published US 20020175408).
July 20, 2009			Patent application becomes abandoned due to the rejection not being answered timely

			(applicant abandoned effort)
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The timelines of Table T6.1 show a patent race because:

- a) early applications A (column 2) and B (column 3) became issued as patents; while
- b) later application C (last column) failed to become a patent, since a portion of it was rejected over A, and the remainder of it was rejected over B.

In Table T6.1 the timelines of the racing applications do not overlap as closely as they do in FIG. 6D, but the principle is the same.

EXERCISES

Try solving these exercises on a separate document, after reading this chapter of the Patent Ready textbook. Afterward, you can check your solutions (see link at the end of this section).

Exercise E6.1: Recognizing Key Dates Of Patent Documents.

From the patent documents in the first column, look up their key dates, and write them in the table below in place of the question marks. You will recognize both issued patents above.

Hints: Use the documents where the dates are provided, for knowing where to look up the dates of the other documents. For the filing date, for this exercise only, disregard any “priority data” and “provisional” dates. For US patents whose applications were filed before 2001, there was no publication, and thus no publication delay. Where time durations are requested approximately, the first significant digit is enough, and is intended to convey that these time durations can be different for different patents.

Patent Document Number	Filing date of patent application (T5)	Publication date of patent application (T6)	Publication Delay (T6-T5) in months (approx)	Issue date of patent (T8)	Time to issue (T8-T5) in years (approx)
US 6,882,051 B2	March 29, 2002	November 28, 2002	8	April 19, 2005	3
US 8,382,229 B2	?	?	?	?	?
US 09,275,759 B2	?	?	?	?	?
US 03,212,162	January 5, 1962	n/a	n/a	October 19, 1965	3 (3.5)
US 06,398,010	?	?	?	?	?

B1					
US 6,340,822 B1	?	?	?	?	?
US 06,678,681	?	?	?	?	?

Exercise E6.2: Forecasting results of prosecution of rival’s patent application

Assume the fact pattern given for [Exercise E2.3.0](#) above, and further:

- * New PA+ has been marked “PATENT PENDING” since it was introduced to market at Y1, while PA had never patent marked this way.
 - * 19 months have passed since new PA+ has been introduced to market.
 - * CB wants to understand its risk PBR-1 for copying feature F2, and so CB does a patent search by keywords. This keyword search quickly finds a published patent application belonging to CA, and describing feature F2.
 - * CB also knows of a much older patent that describes feature F2. CB’s patent attorney is confident that, if the Patent Office also finds that older patent while examining CA’s patent application for F2, the latter will not be issued as a patent.
- Is it guaranteed that the Patent Office will actually find that older patent, while examining CA’s patent application?

Exercise E6.3.0: In what type of an Innovation Landscape a successful inventor-innovator can be followed earlier, i.e. copied, with higher confidence by the follower.

Assume the fact pattern given for [Exercise E2.3.0](#) above, and further:

- * From the day that new product PA+ has been introduced to market, it has been marked “PATENT PENDING”.
- * Exactly 3 years since that day, neither CA nor CB has changed its offering. At that time, CB wants to understand its risk PBR-1 for copying feature F2:
 - * CB reasons that the “PATENT PENDING” marking on PA+ denotes that CA has filed a patent application that covers only Feature F2. This makes sense to CB, given that PA had never been marked this way, CA has no other known patents, and PA and PB had competed for some time.
 - * In order to be certain to find CA’s patent application for Feature F2, CB does a super, exhaustive, multi-parameter patent search, which is even more advanced than anything described in the Patent Ready textbook.
 - * This super search finds no such patent application filed, or patent issued, by CA or for Feature F2.

Exercise E6.3.1: Innovation Landscape of countries where publication of applications (FIG. 6A) is required.

If both CA and CB are anywhere in the world where publication is required for all patent pending applications 18 months after they are filed, what is CB’s risk now PBR-1 for copying Feature F2?

Exercise E6.3.2: Innovation Landscape in the US, where publication of applications is not required

If both CA and CB are in the US, is CB's risk PBR-1 for copying Feature F2 now the same, less or more than in E6.3.1? Note: CA may have chosen FIG. 6A or FIG. 6B.

You can check your work by [accessing solutions for the exercises of this Chapter](#).

FOR LEARNING FROM CHAPTER 7
OF THE [PATENT READY® BOOK](#)

QUESTIONS TO PONDER:

QTP.7.1) This chapter of the textbook asks you to read an entire patent. After you do, you will recognize that a patent includes a *technical description*. Does this mean that the patent lacks a *legal* aspect? Or a *business* aspect? What would be such a legal aspect or a business aspect of a patent?

MORE INFORMATION:

Print out this patent: [US 6,398,010 B1 \(deposit objects\)](#).

When it comes to the exercise of section 7.5 of the textbook, read this patent instead. (It is even shorter than the one in the Appendix of the textbook, and you could use this printout for the additional exercises.)

The patent in FIG. 7E was created according to the time line of FIG. 6A; on its cover page, you can also see the data of its earlier-published application. If you look at the cover page of [this other US patent](#), however, you will find no similar earlier-published application is shown. This is because this other US patent was created from an application that was filed in the US under the system of FIG. 6B, before the system of FIG 6A became possible.

EXERCISES

Try solving these exercises on a separate document, after reading this chapter of the Patent Ready textbook. Afterward, you can check your solutions (see link at the end of this section).

Exercise E7.1: Reading your first patent

Read your first patent in full, as suggested in section 7.5 of the textbook. Considering the remaining exercises for this chapter, your best option for this exercise is to read this one instead: [US 6,398,010 B1 \(deposit objects\)](#). Start from the cover page. If, while reading, there is a part that does not make sense to you, mark it, skip to the next line and continue reading. Then return to the place you marked.

Exercise E7.2: US patents first written in a different language

If English is your native language, and if the patent you read were indeed Patent No. 6,398,010, did the writing seem unusual to you?

Exercise E7.3: Identifying dimensions of elements in patents

Look at this patent: [US 6,398,010 B1 \(deposit objects\)](#). In FIG.s 1 and 2, flat objects 2 are shown. These elements are also called “tube segments” in column 1, lines 24-25, and are further called “workpieces” in column 1, lines 36-37 and other places.

In the entire document, do you see any dimensions for these flat objects 2?
 Is this document deficient for not mentioning such dimensions?

Exercise E7.4: The legal rights of the patent

If you were asked to design a device that a) competes with the design of Patent No. 6,398,010 while b) avoiding the legal reach of that patent, then which part of the patent would your design have to legally avoid?

Exercise E7.5: Identifying all the claims in a US patent document

Identify all the claims in the Patent No. 6,398,010, and fill in the table below. Note the line number is sometimes ambiguous, as the line numbers printed on US patent documents sometimes fall between the actual lines printed on the patent.

Claim #	Starts on column #	Starts on line # (approximately)	independent or dependent
1	?	?	?
?	?	?	?

Exercise E7.6: Counting the independent and the dependent claims of a US patent document

How many of the claims of Patent No. 6,398,010 are independent? How many dependent?

Exercise E7.7: Different arrangement of elements in patents of other countries

Look again at the [sample Korean patent document](#). Do you see anything different about the location of its drawing compared to that of, say, U.S. patents?

You can check your work by [accessing solutions for the exercises of this Chapter](#).

FOR LEARNING FROM CHAPTER 8
OF THE [PATENT READY® BOOK](#)

QUESTIONS TO PONDER:

QTP.8.1) The cost of finding & downloading patent documents.

Searching for published science papers requires not only time, but also outright *money*. For example, paid subscriptions are required for searching some databases, or downloading their full articles.

As seen in section 8.4 of the textbook, searching for patent documents costs no outright money; one can do it on the internet, with enough skill, patience and persistence. Once a patent document of interest has been identified, it can be downloaded for free.

Why would searching for patent documents cost no outright money?

MORE INFORMATION:

Materials NOT associated with the text of this chapter: There are no exercises for reading and parsing claims of patents, or understanding the exact legal coverage of claims. Keep in mind that the claims can cover more, or even less, than they say literally, after they have been construed legally, which means after legal rules have been applied to them. Incidentally, these legal rules may change any time and with little warning, at least in the U.S.

Reading the claims of a patent can give you **a good starting idea as to what is, and what is not legally covered by the patent**, but always ask your patent attorney for guidance as in the text.

The below is an artificially created example for getting such a good starting idea. Assume a U.S. patent ends with the following single claim:

...
CLAIM
The claimed invention is:
1. An automobile, comprising:
a chassis;
wheels coupled to the chassis; and
a GPS receiver coupled to the chassis.

If you were presented with an automobile that has a chassis, four wheels coupled to the chassis, and a GPS receiver coupled to the chassis at some point, then *your good starting idea would be that such an automobile likely infringes sample claim 1 above*. This is only a starting idea, however, as per the above. In this particular case, many automobiles qualify today. Of course, such a patent would have to be very old and by now expired or not valid due to prior art – see for example United States Patent No. 5,272,483.

EXERCISES

Try solving these exercises on a separate document, after reading this chapter of the Patent Ready textbook. Afterward, you can check your solutions (see link at the end of this section).

Exercise E8.1: Types of prior art references

What are the types of prior art references?

Exercise E8.2: Update your Personal Patent Organizer

Ensure that your Personal Patent Organizer includes useful search links such as:

- Searches offered by the USPTO: <http://patft.uspto.gov/>
- Searches offered by the WIPO: <https://patentscope.wipo.int/search/en/search.jsf>
- Searches offered by the EPO: <http://www.epo.org/searching-for-patents/technical/espacenet.html#tab1>
- Searches offered by: <https://patents.google.com/>
- Some very good searches: <http://www.freepatentsonline.com/search.html>

Exercise E8.3: Your first few patent searches

Do the exercise from section 8.6 of textbook, searching only in the USPTO, and only patents this time – not published patent applications.

Exercise E8.4: Type of prior art search when you want to build a new feature

You want to add a new (for your company) feature in your product, exactly the way your rival company already offers it. What kind of patent search do you do?

Exercise E8.5: Type of prior art search against rival patent

Suppose your search from the previous exercise found that your rival company has a three-year old issued patent on their feature. In addition, you confirm that, in this instance, the patent describes and claims the new feature exactly as it is offered. Since you still want to add your rival's feature to your product, what type of search should you do against that patent, before you go to your patent attorney?

Exercise E8.6: Type of prior art search when exploring a new idea

You have an idea for an invention. You have never seen it anywhere before. Since you want to see whether or not you can get a patent on it, you perform what type of a prior art search?

Exercise E8.7: What to search

When you want to do a novelty search, should you search issued patents or published patent applications in your country?

Exercise E8.8: Dealing with adverse results of novelty search

Suppose your novelty search found some patents that describe the idea. You want to build the idea. What should you do?

Exercise E8.9.0: Full search example

Here is a technical problem: When a flying aircraft lands on a runway, its tires touch the ground suddenly. A little puff of white smoke may even appear as the tires, which were not moving before, are forced to start moving very fast due to the sudden contact and friction with the ground. This friction makes “bald spots” on the tires, and thus reduces their useful economic life.

One day, as you wait at the airport for a friend to arrive, you gaze at the airplanes. You notice the puff of smoke every time they land, and recognize what causes it. Then you have the idea to solve this problem at least partially, to extend the life of the tires. Your idea is that the aircraft, upon approaching the runway, would somehow start moving its tires shortly before landing, to reduce the friction.

Now you want to do a patentability search for your idea.

Exercise E8.9.1: Initial keywords

What keywords would you use initially?

Exercise E8.9.2: Initial search

Search in the USPTO database, patents only, using your initial keywords. Notice how many results you are finding, for solving how many different problems.

Exercise E8.9.3: Learned keywords

By looking at these results, or by narrowing your search some, you get the vague sense that your idea may have been already known. In fact, *there is a specific verb* that the patents use for the feature of an airplane to start moving its tires shortly in advance of landing. This verb is used in at least two patents. What is that verb?

Exercise E8.9.4: Repeating search using the learned keywords

Now repeat the prior art search, using your learned keyword, and in fact removing some of your earlier words. Any thoughts on the quality of your search?

Exercise E8.9.5: Avoiding over-reliance on learned keywords

Recognize that a learned keyword can become established in the art from a *repeating* solution. The learned keyword was not always known. In fact, the patent in which it first appeared might not have been the first patent to use the concept. Go to the earliest patents you found in the previous exercise, and see which patents *they* cite as prior art. Any thoughts?

You can check your work by [accessing solutions for the exercises of this Chapter](#).

FOR LEARNING FROM CHAPTER 9
OF THE [PATENT READY® BOOK](#)

QUESTIONS TO PONDER:

QTP.9.1) What might happen if you have an idea for improving your company's product in the future, and you never let anyone in the company know about it?

MORE INFORMATION:

Patenting will be collaborative between you and your company. At this stage, you have much influence in what your patent application will look like. For example, many of the drawings you create for the IRF will typically appear in some form in your patent application.

EXERCISES

Try solving these exercises on a separate document, after reading this chapter of the Patent Ready textbook. Afterward, you can check your solutions (see link at the end of this section).

Exercise E9.1: INDUSTRY-LIKE HOMEWORK ASSIGNMENT A': Inventing & Reporting an Invention for patenting

a) Identify a product that is currently commercially available, and invent an improvement for this product that no one, to your knowledge as of today, has done before.

Caution, students: if you are requested to submit this as part of a homework assignment, do not report an invention that you want to keep for yourselves, but instead make and report a different invention.

If you cannot think of an invention, then use the Sample Invention provided with the solutions for the exercises of this Chapter.

b) Then prepare to report your invention for patenting: Start with the Invention Reporting Form (IRF) you downloaded for Chapter 5 (if not yet done, here it is again: <http://www.patent-ready.com/content-and-downloads.html>). Exception: If you are using the Patent Ready® Engineering Notebook, or the Patent Ready® Inventor's Journal, then start on a new canvas. (And do not yet fill in the associated Patent Analysis Forms – these are for another Homework Assignment.)

c) Fill in the IRF by writing the description of your invention, but do not do any of the prior art searches that this form calls for. Add secondary new features, extensions, capabilities, etc., if you can think of any. For example, what else could your device/system do?

d) Create one or more drawings for your description. At least one should be a high-level diagram of the various components and how they interact. Hand-drawing is OK, as long as the drawings are clear and neat. Embed the drawings at the appropriate places of the IRF by taking a picture with smartphone. Review, and adjust the written description to refer to the elements in the drawings. See sections 9.9-9.10 of the textbook for more.

Exercise E9.2: Adequacy of document as an IRF

Why is an internal design report not adequate as an IRF?

Exercise E9.3: The effort of creating the description of the invention

Observe yourself as you complete the Invention Reporting Form. What do you find more mentally draining, to generate text or to generate drawings?

You can check your work by [accessing solutions for the exercises of this Chapter](#).

FOR LEARNING FROM CHAPTER 10
OF THE [PATENT READY® BOOK](#)

QUESTIONS TO PONDER:

N/A

MORE INFORMATION:

At this stage, you have substantially less influence as to what will happen with your patent application. Somebody else is doing the writing, and you can influence it with any changes you request. Since you will have to proofread also the changes you request, it helps to try to get everything in the IRF right from the beginning.

EXERCISES

Try solving these exercises on a separate document, after reading this chapter of the Patent Ready textbook. Afterward, you can check your solutions (see link at the end of this section).

Exercise E10.0: Proofreading a drafted patent application

Assume you are the inventor of an invention, which has been approved for patenting. Your patent attorney has created [this \(by now familiar!\) document](#) as the proposed patent application. This exercise may require you to print out this document.

Assume that you proofread the document according to the textbook's section 10.4, and the document captures your invention adequately. See the Exercises below.

Exercise E10.1: Differentiation of prior art from the drawings

For Exercise E10, looking at the drawings only, can you tell the difference of your invention from the prior art?

Exercise E10.2: Criterion CR2

For Exercise E10, is criterion CR2 of the textbook's section 10.6 met?

Exercise E10.3: Criterion CR3

For Exercise E10, is criterion CR3 of the textbook's section 10.6 met?

Exercise E10.4: Criterion CR4

For Exercise E10, is criterion CR4 of the textbook's section 10.6 met?



Exercise E10.5: INDUSTRY-LIKE HOMEWORK ASSIGNMENT B': Novelty Search

Assume that you work in a Company that permits you to search as to whether your inventions are patentable. Search for the patentability of the invention you reported in Exercise E9.1, at least for the country you work in. List the closest prior art references. If you have used the Patent Ready® Engineering Notebook, or the Patent Ready® Inventor's Journal, then use the Patent Analysis Forms at this stage. If any features you invented are not mentioned by the prior art you found, what can be done about them?

You can check your work by [accessing solutions for the exercises of this Chapter](#).

FOR LEARNING FROM CHAPTER 11
OF THE [PATENT READY® BOOK](#)

QUESTIONS TO PONDER:

N/A

MORE INFORMATION:

At this stage, you have even less influence as to what will happen with your patent application.

EXERCISES

Try solving these exercises on a separate document, after reading this chapter of the Patent Ready textbook. Afterward, you can check your solutions (see link at the end of this section).

Exercise E11.1: Responding to Office Action

Assume that your company's patent attorney is handling the patent application that was filed with you as the inventor. The Patent Office has sent an Office Action, which alleges that the claims in your application are not patentable due to some prior art. The patent attorney may respond to the Patent Office without even contacting you. Why not contact you, since you are the person who knows the invention the best?

You can check your work by [accessing solutions for the exercises of this Chapter](#).

SOLUTIONS FOR THE EXERCISES OF CHAPTER 1

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Exercise E1.1:

Solution: Alexander Graham Bell is credited with having invented telephony. This patent of his is for improvements in *telegraphy*.

Exercise E1.2:

Solution: Gordon Moore is credited with Moore's Law, namely his 1965 observation that, over the history of computing hardware, the number of transistors in a dense integrated circuit had doubled approximately every two years.

Exercise E1.3:

Solution: This Japanese patent also belongs in the patent family seen above. The by-now-familiar drawing is not in the cover page. Again, even when you are given a patent document in a language foreign to you, flip through all its pages; ask yourself whether you can guess what it means.

Exercise E1.4:

Solution: The employer is the “assignee”, and the inventor is one of the founders.

Exercise E1.5:

Solution: The answer is near the top left of the cover page, immediately after the names of the inventors. Their company patented this in many countries, including the US.

Exercise E1.6:

Solution: Some chemical patents do not have diagrams because they do not need them. Otherwise, patent documents are very similar in their structure, notwithstanding their technology.

Exercise E1.7:

Solution: Technologies can be very diverse!

Exercise E1.8: Wholly unfamiliar patent document in an unfamiliar language.

Solutions:

- a) The characters of “KR” are for Korea; this is a Korean patent document.
- b) Look for numbers that look like dates; of those, the one that is the latest would be the one that this document was likely originated, and it looks like the year 1999.

- c) From the drawing on the cover page, it looks like something mechanical, whose components can shift their position relative to each other. So, it does not look like it is for a type of database query.
- d) This document has only one drawing. In most patent documents, one of their drawings is *repeated* on the cover page, which is why this document shows this drawing twice.

The big lesson here, repeated: do not become intimidated by a patent document in an unfamiliar language. Rather, flip through its pages, look for its drawings; look for numbers and dates that may be familiar in view of other documents.

Exercise E1.9: Identifying patent document types, and the process that generated them

Solutions:

Patent Document Number	Document type	FIG. # in Patent Ready® book showing process that generated this patent document
US 2005 0240370	Published patent application	FIG. 1A (from above)
US 08,382,229	Issued patent	FIG. 1A (from above)
GB 2 342 345 A	Published patent application	FIG. 1B (from above)
GB 2 342 345 B	Issued patent	FIG. 1B (from above)
US 0,174,465	Issued patent	FIG. 1A
US 3,212,162	Issued patent	FIG. 1A
WO 2000 016911 A1	Published International (PCT) patent application	FIG. 1E
US 09,275,759	Issued patent	FIG. 1A

SOLUTIONS FOR THE EXERCISES OF CHAPTER 2

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Exercise E2.1: Viewing Product Comparison Charts

Solution: You should be able to see tables such as Table T2.1, except with multiple rows for products and multiple columns for features. There are multiple examples of such images (without the prices).

Here is an example where the structure of the information is preserved (although the exact content is intentionally obscured):

	0210007	02	0210	02101	1%	2%
Get...	✓	✓	✓	✓	✓	✓
Add...	✓	✓	✓	✓	✓	✓
Info...	✓	✓	✓	✓	✓	✓
Aut...	✓		✓	✓	✓	✓
Man...			4.00*	4.00*	4.00*	3.00*
Wh...			✓	✓	✓	✓
Exp...					✓	✓
Wh...					✓	✓
Wh...						✓
Del...						✓
Put...	✓					
Del...				✓		✓
	Mainly indoors				In and outdoors	



Exercise E2.2: Lack of Differentiation

Solutions:

- a) See textbook section 2.2.
- b) Such products would have similar checkmarks in the same columns, which would signify the lack of differentiation. None of the sellers can raise their price, because they would lose quickly their market share.

Exercise E2.3.0: Scenario of Dynamic Competition

Exercise E2.3.1: The Perspective of Lagging Company CB in Dynamic Competition

Solutions:

- a) Yes, because it would improve CB's revenue over the present situation of Table T2.3. To make it materialize, CB would add feature F2 to its product, which is called a follower strategy.
- b) In a world without patents, CB would need less R&D funds for implementing feature F2 than CA spent, because CB can copy feature F2 exactly, without having to experiment, develop or design it – a benefit of following.
- c) In a world without patents, yes, it would be easier for CB to justify spending those R&D funds, because the reward for them is a lot more certain than it was for CA. Indeed, CB now *knows* the market wants feature F2, because CA proved it, educated the market, etc.
- d) In a world with patents, CB faces the additional risk that Company A timely applied strategy PBO-1 (textbook section 2.8) for feature F2. Accordingly, product PB+ would face risk PBR-1 (textbook section 2.6).

Exercise E2.3.2: The Perspective of Leading Company CA in Dynamic Competition

Solutions:

- a) PBR-2 (see textbook section 2.7).
- b) This risk is foreseeable to CA, because it is common knowledge that following, where not prohibited, is the most effective way for a rival company to catch up. In fact, this risk was foreseeable to CA *at the time of having decided to develop feature F2*.
- c) CA could mitigate this risk PBR-2 by patenting feature F2 *in conjunction with developing feature F2 at year Y0-Y1*. (Afterward, it can be too late.)

SOLUTIONS FOR THE EXERCISES OF CHAPTER 3

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Exercise E3.1: Protecting the investment to develop a new product or feature

Solution: By minimizing the quantity on the horizontal axis; see last paragraph of section 3.10.

Exercise E3.2: The extent to which the costs of New Product Development are burdened if one also patents

Solution: Most often yes. This answer assumes that the new product or feature is patentable. When deciding whether to patent a new feature, one could consult the calculations made for the NPV, and/or the company's marketing department for their impression as to whether the new feature will be desired by customers.

Exercise E3.3: The extent to which the time for New Product Development is delayed by also patenting

Solution: Practically never. An engineer who is key in the development of the new feature and thus has functioned as an inventor can always find a time during which he or she is not in the critical path of development and, during that time, report the invention for patenting.

Exercise E3.4: Dealing with the temptation of False Patent Marking

Solutions:

- a) "This type of conduct would be False Patent Marking, which is illegal and for which there are penalties if discovered."
- b) "False Patent Marking can be discovered by patient, methodical rivals who document our company's actions, product introductions, patent markings at the time, trademark filings, lack of any patent issuing after some years, etc. This will also be strongly suspected if our product is copied, and we never sue based on a patent, etc." (As for employees revealing False Patent Marking, see next chapter.)
- c) "Rivals can report our False Patent Marking. Lawsuits can follow, where we will have to pay fines to the government and to them, just for the false marking, even if they have not suffered competitive injury. In addition, if they prove that they did not compete *because* of our False Patent Marking, then they can sue us for more."

Exercise E3.5: Detecting & dealing with False Patent Marking by rivals

Solutions:

- a)
 - i) yes – the patent number may have been bogus
 - ii) yes – the patent number may have been bogus, and indeed copied from a different, unrelated product



- b) If their Patent Marking has ever been a factor into your decision to not compete, then document it patiently and methodically and let your Management know. If they have been marking “Patent Pending” for years, with no patent issuing, again document it every year. If their Patent Marking turns out to have been false, you may be happy that you documented it.
- c) You should do nothing before contacting a patent attorney. There can be different circumstances that must be checked. For example, some specific types of false marking could be legally tolerated. Plus, there are risks to your company if you make false accusations. Always ask your patent attorney before speaking out.

SOLUTIONS FOR THE EXERCISES OF CHAPTER 4

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Exercise E4.1: Start your Personal Patent Organizer (PPO)

(No one will start your Personal Patent Organizer (PPO) except you. You will find it useful when you apply for a new job, and so on.)

Exercise E4.2:

Solution: This is not ordinary writing. This is legal writing, which values precision over ease of flow, in case it needs to be used in a court.

Exercise E4.3:

Solution: This section suggests that you are starting to work for an ethical company. And, a smart company. For example, if your new company is ever accused by your former employer that you revealed its trade secrets, your new employer may be able to pass the entire blame to you. Do not reveal the trade secrets of your former employer to your new one.

Exercise E4.4: Possibility of divulging your employer's False Patent Marking

Solution: This would call for a company to use Trade Secrets law to prevent the illegal behavior or False Patent Marking from becoming divulged. Check with your patent attorney first.

Exercise E4.5:

Solutions:

- a) Most often, no ... at least in the US, your employment is typically considered to be “employment at will”, which means your employment can be terminated at will, unless the agreement includes a specific promise to employ you for a certain number of years.
- b) No, and you would like to receive a raise at some point while you work there! Plus, yes, your salary may be reduced. Of course, smart companies reduce salaries only in rare cases.
- c) No, the company could re-assign you to different duties as soon as you start working. Of course, smart companies try to not disappoint their employees!

Exercise E4.6: Loyalty

Solution: The word “loyally” is indeed mentioned in section 2.3 of the Agreement. And, in your state, the law could imply a duty of loyalty more broadly than the description of section 2.3.

Exercise E4.7: Ownership of inventions possibly outside the scope of the employer



Solution: Yes, per section 6.7 of the Agreement terms. This patent would be for your personal invention, separate from your employment, because each of the definitions and requirements of that section is met.

Exercise E4.8:

Solution: In situations like E4.7 where the separation of scope is so clear, people try two options.

1) The “take a deep breath and never tell the employer” approach.

Even if your venture fails, problems could arise in some extreme cases.

If your invention succeeds and you try to sell the business around it, an overly diligent buyer may present the hurdle that your full-time employer at the time needs to declare they have no rights in it. In other words, proof would have to be produced as to what was *at the time* the business of your full-time employer, etc. The more time passes, the more problematic this can become. For example, your employer could be acquired by a conglomerate with a different division, which also manufactures bicycles; it may take a court action to prove that your company had no rights to it at the time, etc.

2) The “anticipate success” approach, which works better.

File your patents for your invention.

When you are told that your filings are established, meet with your employer’s legal department. When you do, tell them about this, show them your filing receipts, and ask them for an email saying that they have no claim in it, per your employment agreement.

If they are reasonably nice, they will send you such an email. Save that email for the overly diligent buyer in the future – you will not have to hold your breath after that.

Note: do not try these approaches if the separation of scope is not as clear as in E4.7!

SOLUTIONS FOR THE EXERCISES OF CHAPTER 5

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Exercise E5.1: Updating your Personal Patent Organizer (PPO)

Solution: For this IRF, the administrative questions for you to embed in your Patent Organizer are the inventor information. From the below, fill in what you know already:

Inventor Data: Full legal name: _____ Telephone number: _____ Email address (accessible from outside our company:) _____ @ [company name/domain].com Residence (city, state): _____ Country of citizenship: _____ Inventor's Supervisor: Name: _____ Telephone number: _____

Exercise E5.2: Definition of an invention

Solution: Look in the Patent Ready textbook section 5.4. If you memorize this definition, you will find your subsequent conversations become more streamlined.

Exercise E5.3:

Solution: No. It is up to the employer to give you problems, and it is up to you to solve them. Some of your solutions can be patentable inventions.

Also, you will progress in your career if, in your free time only, you also start thinking of additional good problems to solve.

Exercise E5.4:

Solution: The company will consider it both strategically with product charts, and also by using the analysis of FIG. 3A.

Also, you will progress in your career, you are going to start evaluating in advance which of your inventions they are more likely to prefer, and invest more in developing them and reporting them for patenting.

SOLUTIONS FOR THE EXERCISES OF CHAPTER 6

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Exercise E6.1:

Solutions:

Patent Document Number	Filing date of patent application (T5)	Publication date of patent application (T6)	Publication Delay (T6-T5) in months (approx)	Issue date of patent (T8)	Time to issue (T8-T5) in years (approx)
US 6,882,051 B2	March 29, 2002	November 28, 2002	8	April 19, 2005	3
US 8,382,229 B2	September 27, 2010	March 29, 2012	18	February 26, 2013	2
US 09,275,759 B2	February 12, 2008	September 25, 2008	7	March 1, 2016	8
US 03,212,162	January 5, 1962	n/a	n/a	October 19, 1965	3 (3.5)
US 06,398,010 B1	October 5, 1999	n/a	n/a	June 4, 2002	2 (2.5)
US 6,340,822 B1	October 5, 1999	n/a	n/a	January 22, 2002	2
US 06,678,681	March 9, 2000	n/a	n/a	January 13, 2004	3

Notice the variability in the publication delay and the time to issue. (Two of these applications were actually filed on the same day!)

Exercise E6.2: Forecasting results of prosecution of rival's patent application

Solution: No, far from it – see textbook section 6.1 and footnote 21. Your patent attorney will suggest pros and cons of various strategies, which include PSD7 in FIG. 3B.

Exercise E6.3.0: In what type of an Innovation Landscape a successful inventor-innovator can be followed earlier, i.e. copied, with higher confidence by the follower.

Exercise E6.3.1: Innovation Landscape of countries where publication of applications (FIG. 6A) is required.

Solution: With these facts, after 3 years (in fact, likely earlier), CB is almost certain that the “PATENT PENDING” marking on PA+ has been False Patent Marking.

CB now has a small risk PBR-1, if it copies feature F2 by introducing PB+.

In fact, it is CA that is likely in trouble. In some places the penalties for CA’s false marking include jail time. CB could have also recorded how much of its delay has been due to apprehension of CA’s False Patent Marking.

Exercise E6.3.2: Innovation Landscape in the US, where publication of applications is not required

Solution: With these facts, even after 3 years CB is not certain about a patent application having been filed by CA. If CA indeed applied for a patent and still none is findable, CA must have chosen FIG. 6B, in which case no patent application will publish while pending. In such a case, CA’s patent likely has not issued yet, and is still being prosecuted.

So, CB’s risk PBR-1 for copying Feature F2 is much higher in the US, than in most other countries in the world.

CB should continue monitoring which happens first:

- a) a patent issues to CA for feature F2, or
- b) PA+ stops being marked “PATENT PENDING”, which CA must do when their patent application becomes abandoned (or else they will be false patent marking after that time).

SOLUTIONS FOR THE EXERCISES OF CHAPTER 7

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Exercise E7.1: Reading your first patent

Reading an entire patent attentively gives you a sense about a patent that nobody else can do for you.

Exercise E7.2: US patents first written in a different language

Solution: Patent writing is generally plain and descriptive, because patents are reference documents. In addition, this particular patent document was originally written in a different language (German), and then translated into English for the US filing; some idioms of the original language have remained.

Exercise E7.3: Identifying dimensions of elements in patents

Solution: This patent document does not show any dimensions for these flat objects 2, and for many other objects. Often dimensions are not included in a patent. Unless dimensions are specified, different sizes could be possible. Specifying dimensions is not necessary in some instances, e.g. when such dimensions would be understood by a person skilled in the art, in the context of the description. Including sample dimensions is strongly advised, however, especially when the art is new.

Exercise E7.4: The legal rights of the patent

Solution: Your design must avoid *the claims* of that patent, if the patent is in the same country, has not expired yet, etc.

Exercise E7.5: Identifying all the claims in a US patent document

Solution:

Claim #	Starts on column #	Starts on line # (approximately)	independent or dependent
1	3	29	Independent
2	3	46	Depends from claim 1
3	3	49	Depends from claim 1
4	3	53	Depends from claim 1
5	3	58	Depends from claim 4
6	4	1	Depends from claim 4
7	4	4	Depends from claim 4
8	4	12	Depends from claim 7
9	4	16	Independent
10	4	42	Depends from claim 9
11	4	47	Depends from claim 9

12	4	49	Depends from claim 9
13	4	52	Depends from claim 10
14	4	57	Depends from claim 9

Exercise E7.6: Counting the independent and the dependent claims of a US patent document

Solution: This patent has 2 independent claims and 12 dependent claims.

Exercise E7.7: Different arrangement of elements in patents of other countries

Solution: Except for the cover page, the drawing of the Korean patent document appears at a different location than it would for a US patent: the drawing is at the end, after the Detailed Description. Moreover, the drawing does not appear in a separate drawing sheet, but in the same sheet as the end of the text of the description.

SOLUTIONS FOR THE EXERCISES OF CHAPTER 8

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Exercise E8.1: Types of prior art references

Solution: See section 8.1 of the textbook.

Exercise E8.3: Your first few patent searches

Patent searching is a skill expected of engineers in New Product Development.

Exercise E8.4: Type of prior art search when you want to build a new feature

Solution: See section 8.12 of the textbook. You are not looking to patent this, because someone else has already invented it.

Exercise E8.5: Type of prior art search against rival patent

Solution: See section 8.14 of the textbook, per strategy PSD6.

Exercise E8.6: Type of prior art search when exploring a new idea

Solution: See section 8.16 of the textbook.

Exercise E8.7: What to search

Solution: When you want to do a novelty search, should you search as much as possible, while conserving on resources. It often costs money to search for NPL, but at least you can search for both issued patents and published patent applications with no cost. In fact, some of the search engines now in your Personal Patent Organizer permit a single search for both issued patents and published applications. If your country is small, you may want to consider in more countries.

Exercise E8.8: Dealing with adverse results of novelty search

Solution: Again, you would do a patent invalidation search as in Exercise E8.5. See also sections 8.13-8.15 of the textbook. The difference from E8.5, is that here you found your target patents from a novelty search, because you did not know whether anyone else had thought of the idea before.

Exercise E8.9.0: Full search example

Exercise E8.9.1: Initial keywords

Solution: Some thoughts for keywords are: (aircraft or airplane), landing, wheel, move, friction

Exercise E8.9.2: Initial search

Solution: The results can be many, and for all kinds of solutions. You have to spend time skimming them, to identify those solutions that matter.

Exercise E8.9.3: Learned keywords

Solution: The verb is to prerotate the wheels. Of course, the way this exercise is posed for purposes of this example, you could have found that verb searching differently. When you do a patent search, however, you may not know what question to ask, and actually have to read the patents so as to learn the best keywords.

Exercise E8.9.4: Repeating search using the learned keywords

Solution: Use prerotate as one of your keywords. See if you no longer need any others of your initial keywords, and remove them. For example:

Since this verb describes motion, remove the word: move.

Since the problem seems understood, remove the word: friction

Notice whether your search results improve: fewer, and better focused on your problem. Your understanding of the learned keyword is now confirmed.

By the way, the U.S. patents that you should have found by now could include: 5,165,624 and 4,732,350.

Exercise E8.9.5: Avoiding over-reliance on learned keywords

Searching the prior art of 5,165,624, you can find additional, even earlier, patents for the same solution, which do not use the learned keyword prerotate. Examples are 4,659,039; and 4,061,294.

SOLUTIONS FOR THE EXERCISES OF CHAPTER 9

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Exercise E9.1: INDUSTRY-LIKE HOMEWORK ASSIGNMENT A': Inventing & Reporting an Invention for patenting

Solution: There is no right invention for this exercise! if you cannot think of a product to improve, you can start from the following:

Sample Invention:

Description, background and prior art: Food items sold in the supermarket can be provided with RFID tags. Each food item can list the item's name and its expiration date. Stores use these RFID tags for purposes of maintaining their own inventory.

Description, invention: The invention is a home refrigerator that has an RFID reader arranged to read RFID tags of what is in it. The refrigerator also has a display on the outside of its door. The display can list the items read by the reader from the RFID tags, plus their expiration dates. When purchased food items are placed in the refrigerator, the contents of the RFID tags can be listed on the display.

Extensions for this Sample Invention can come by thinking of the following:

- Should the RFID reader be working when the door is open?
- When would a customer most appreciate checking what is in their refrigerator?
- What could be done further, given that the expiration dates will be known?

Exercise E9.2: Adequacy of document as an IRF

Solution: See section 9.7 of the textbook.

Exercise E9.3: The effort of creating the description of the invention

Solution: There is no right answer, but many people think drawings require more effort to start.

Still, the only difficulty with generating drawings is to start. Once one starts, everything tends to fall into place.

(True story: One of the author's favorite inventors had his first invention for his employer. The invention was all confused in his mind as he sat down to write it. So he restarted, this time by making drawings instead, and it became all clear – he had three inventions, not just one!)

SOLUTIONS FOR THE EXERCISES OF CHAPTER 10

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Exercise E10.1: Differentiation of prior art from the drawings

Solution: Yes. FIG. 1 is labeled “PRIOR ART”, which denotes that what is shown is not the invention, but is still pertinent background. FIG. 2 is not labeled this way, which is a way of denoting that it shows at least a portion of the invention. Make sure nothing of your invention is shown in a diagram labeled “PRIOR ART”.

In this case, there are common elements in both drawings, including conveyor 1, workpieces 2 and conveyor 3.

Caution: What is very unusual here is that some of the other reference numerals, e.g. 5, 6, 7, are used to denote different things in the two drawings of the same patent document. Writing like this risks error, and you should object to it. Here there was no error, because FIG. 1 is described in generally different places than FIG. 2.

Exercise E10.2: Criterion CR2

Solution: Yes.

Exercise E10.3: Criterion CR3

Solution: Yes.

Exercise E10.4: Criterion CR4

Solution: Yes. (Reference numeral 3 is described for FIG. 2, *and also for FIG. 1*, in column 2, line 48, even though FIG. 1 is mainly described in a different places, as above.)

Exercise E10.5: INDUSTRY-LIKE HOMEWORK ASSIGNMENT B’: Novelty Search

Solution: You should have searched both issued patents and published patent applications. If any features you invented are not mentioned by the prior art you found, then you can perhaps still apply to patent them – they may prove to be differentiators.

SOLUTIONS FOR THE EXERCISES OF CHAPTER 11

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Exercise E11.1: Responding to Office Action

Solution: See section 11.7 of the textbook.

FOR ADDING TO YOUR RESUME AFTERWARDS

Below are sample words you can add to your resume, if you have read the entire Patent Ready® book and have covered all the materials, exercises and homework assignments in this document. If you have covered less, you should adjust these words accordingly.

* Learnings about the patent system and company patent strategies; developed practical patent working skills in support of company patent strategies, to reduce patent business risks for new products under development; reported a sample invention for patenting; understanding of patent searches for novelty, clearance, invalidation of rival patents and limitations of searches; exercises in: searching patents, recognizing what search results mean, and parsing and reviewing patent documents.

AND, IN PREPARATION FOR YOUR INTERVIEW WITH A COMPANY:

Does this company have any patents? You can search in advance of the interview. This may give you a sense as to whether patent work will be expected of you or not.

AND, IF YOU LEARN IN ADVANCE WHO YOUR INTERVIEWER(S) WILL BE:

Do your interviewer(s) have any recently published patent applications? You can search in advance of the interview. If you find any read them, because they might reveal what they are working on, and you may sound more knowledgeable in your interview! You need not volunteer the explanation (“I read it in your patents”), unless they ask how you know.